



DUST COLLECTOR TYPE AIRWALL 16000



- Warranty
- Safety
- Operation

- Service Parts
- Accessory Information
- Registration Form



INSTRUCTION MANUAL

2018-05-07



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NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL

Welcome to the ISTblast® family of sandblasting products. This booklet contains helpful information and acquaints you with the operation and maintenance of your equipment. Please read carefully and follow our recommendations to assure trouble free operation. If you have any questions, please do not hesitate to contact your distributor or our technical service.

- 1. Carefully inspect the shipping carton for any signs of transport damage. The damage to the carton often indicates possibility of transport damage to the equipment inside.**
- 2. Carefully remove your ISTblast SANDBLASTING CABINET from the shipping carton and skid.**
- 3. Check your equipment immediately to ensure that it is free of transport damage. Report any transport damage to the carrier without delay for possible claim procedures. International Surface Technologies inc. is not responsible for damage to equipment after it leaves our warehouse.**
- 4. Check the equipment zx and compare it with the parts you have received. If any parts are missing, contact the supplier you purchased the equipment from.**

Before operating the ISTblast SANDBLASTING CABINET, read this Instruction Manual completely. All ISTblast products are engineered and manufactured to the highest performance standards and have been subjected to detail testing before shipment from the factory.



INTRODUCTION - INSTALLATION

The products described in this material, and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose of application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein.

Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

It is the responsibility of the knowledgeable, experienced users of the products mentioned in this material to familiarize themselves with the appropriate laws, regulations and safe practices that apply to these products, equipment that is connected to these products and materials that may be used with these products.

It is the responsibility of the user to insure that proper training of operators has been performed and a safe work environment is provided.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.



WARNING

« READ ALL INSTRUCTIONS » Failure to follow the SAFETY RULES identified by a BULLET (●) symbol listed BELOW and other safety precautions may result in serious personal injury.

« SAVE THESE INSTRUCTIONS »

GENERAL SAFETY RULES - PERSONAL SAFETY - UNIT USE AND CARE

- **KEEP WORK AREA CLEAN.**
- **KEEP CHILDREN AWAY.** Do not let visitors come in contact with the equipment. All visitors should be kept away from the work area.

PERSONAL SAFETY

- **GUARD AGAINST ELECTRIC SHOCK.** Non-skid footwear is recommended where damp or wet ground may be encountered. A ground fault circuit interrupter protected power line must be used for these conditions.
- **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in the moving parts. Wear protective hair covering to contain long hair.
- **USE SAFETY EQUIPMENT. WEAR SAFETY GOGGLES** or glasses with side shields.
- **WEAR A DUST PROOF MASK.**
- **STAY ALERT. USE YOUR COMMON SENSE.** Concentrate on what you are doing. Do not operate the unit when you are tired or under the influence of drugs.
- **DO NOT OVERREACH.** Keep proper footing and balance at all times.
- **BEFORE CONNECTING THE UNIT** be sure the power is the same as that specified on the nameplate of the Sand Blasting Cabinet. With power greater than that specified on the Nameplate can seriously injure the user – as well as damage the Unit.

UNIT USE AND CARE

- **DO NOT FORCE THE UNIT.** It will perform better and safer at the rate for which it was designed.
- **THE USE OF ANY OTHER ACCESSORIES** not specified in this manual may create a hazard.
- **CLOSE THE MAIN BREAKER SWITCH BEFORE SERVICING** or when not in use.
- **DO NOT ALTER OR MISUSE THE UNIT.** These units are precision built. Any alteration or modification not specified is misuse and may result in a dangerous situation.
Only trained repairmen should attempt (●) ALL REPAIRS, electrical or mechanical. Contact the nearest ISTblast a repair service facility. Use only ISTblast replacement parts; any other parts may create a hazard.



GENERAL DESCRIPTION - SET UP & INSTALLATION

Dust Collectors are dry, reverse pulse jet cartridge collectors, used to ventilate abrasive blast cabinets and remove dust from exhausting air.

The exhauster is mounted on the clean-air side of the filter cartridges, and provides «pull-through» (pulls air through the reclaiming) air flow rated at 600 to 1800 cfm depending on the exhauster size. Dust and particles are drawn through the reclaiming into the dust collector, trapping dust before discharging clean air.

Filter cartridges are cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridges. The expanding air momentarily reverses air flow through the cartridge, releasing dust that has accumulated on the outer surface. The dust particles fall away from the cartridges and into the dust drawer.

The pulse interval are controlled by a sequencer located in front of the dust in the plastic electrical box. The timer controls the «on» time (the length of time for each pulse) and «off» time (the length of time between each pulse). The «on» time should never be adjusted. The lower the setting for the «off» time, the shorter the length of time between pulses.



CAUTION : do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned. See page 13 pulsing unseasoned cartridges could cause premature cartridge failure or decrease the efficiency of dust collector.

The differential pressure gauge shows the pressure difference between the dust side and clean side of the cartridges. The led indicator helps determine the proper pulse pressure and timer «off» time setting. See page 11.

SET UP & INSTALLATION

Position the collector in a convenient location that complies with OSHA and local safety codes. Allow access to the differential pressure sequencer and exhaust damper. Provide ample space at the top and at the front to open the cover to access pulsating air jet system and the cartridges.

Shorting electrical components could result in serious electrical shocks, or equipment damage. All electrical work must be performed by a qualified electrician, and comply with applicable codes.

Connect electrical power

NOTE : A schematic for ISTblast cabinets is supplied with the cabinet. After wiring completed, keep the schematics and manuals together for future reference and electrical replacement parts. Wiring from the user's disconnect to the cabinet controls must be provided by the user. Conduit and wiring from the control box (or starter) to the exhauster motor and 115 volts to the RPC Control Panel (Pulse Sequence Panel), must also be provided by the user. If the dust Collector replaces an existing «push through» collector or dust bag, the exhauster may be wired into the control box, to the terminal strip or starter where the conduit from the old reclaiming motor is attached.

Electrical requirements depend on the size and phase of the motor. Standard dust collectors are supplied as follows:

16000 CFM collectors, 7.5 hp, 230/450 V, 3 Ph, 60 Hz.

WARNING : Electrical power must be locked out and tagged out before continuing.



SET UP & INSTALLATION (CONT'D) OPERATION

Install conduit, and wire the exhauster motor per instruction on the motor plate, and the motor starter (for 3 PH wiring), or terminal strip (for 1 PH wiring) as shown on the schematic.

Install conduit, and wire 115 volt power to the reverse pulse control panel as shown on the schematic.

After the wiring is completed, observe the subsequent warning, and check the motor rotation. To check rotation, jog the starter (momentarily turn switch on and off). This will cause the motor to rotate slowly. Look through the slots in the fan housing on top of the motor where rotation of the fan can easily be observed. Proper rotation is indicated by the arrow on the exhauster housing. The fan should rotate toward the exhauster outlet



WARNING : do not look into the exhauster outlet while the paddle wheel is turning. Injury to the eye or face could occur from objects being ejected from the exhauster.

Check the amperage on initial start up. If the motor draws excessive amperage, gradually close the damper until the amperage is within the specifications shown on the motor plate. The damper is located on the exhauster outlet.

Ground Dust Collector

To prevent static electricity build up, attach an external grounded wire from an earth ground to the grounding lug located on the rear wall of the dust collector.

Compressed Air Connections

NOTE: For maximum filter life and efficiency, the pulse air source should be 30% relative humidity or less, and be free of any oil contaminants. If line air does not meet this requirement, an air dryer is recommended.

Connect a 1» or larger air hose to the pressure regulator located (Picture C, page 17) on the pulse manifold inlet. An isolation valve should be installed at the air source to enable depressurization for service. If rigid pipe is used for the air line, a flexible section of hose must be used at the connection, to enable the top access door to swing open for service.

WARNING if twist-on type air hose couplings are used, they must be secured by safety pins or wires to prevent accidental disconnection while under pressure. Hose disconnection while under pressure could cause serious injury.



WARNING all persons operating this equipment must be made aware of the hazards of abrasive blasting. Prolonged exposure to any dust could result in serious lung disease and death. Short term ingestion of toxic materials, such as lead dust or dust from other heavy metals and corrosives, could cause serious respiratory injury or death. Identify all materials that are to be removed by blasting, and obtain a Materials Safety Data Sheet (MSDS) for the blast media. If lead coating or other toxic materials are being removed by the blasting process, HEPA after-filters must be used for those applications.



INITIAL STARTUP

The dust collector access doors and dust drawer on the reclaimer must be closed when the dust collector is on.
CAUTION : do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned. Pulsing unseasoned cartridges could cause premature cartridge failure or decrease the efficiency of dust collector.

Start-Up

Check that front access door is secured with knob, and that the dust drawer is closed with latch.
 Check that the sequence switch is on.

NOTE: Do not turn the sequence switch «on» until the cartridges are properly seasoned, page 13

Start the exhauster at the control panel, usually mounted on the blast cabinet. Check the pulse manifold pressure.

Shutdown

Run the collector until all media is recovered from the cabinet, and the cabinet is free of airborne dust.

Turn off the exhauster.

Turn off the compressed air supply valve.

Drain the pulse manifold whenever the compressed air supply is turned off. The drain petcock is mounted on the side of the collector.

Empty contents from the dust drawer into a suitable container, per Section maintenance for dust drum page__

ADJUSTMENTS

Manifold Pressure Module

The pressure regulator located on the pulse manifold inlet, adjust pulse pressure. Set initial pressure at 70 psi.

Pulse Sequence Control Panel

Your dust collector is equipped with an automatic cartridges cleaning system. You can see the condition of the cartridges with the digital reader.

Pulse Sequence Control set up parameters

This module is controlled; it means you can change the parameters for maximum cartridges efficiency. Refer to DCT 1000

With key button (select) and (up) (down), you can change some parameters.

Your equipment is already factory set, before changing any parameters, take note of the initial parameters.

Parameters:

Process :Value shown while blower is running (inch of water, cartridges restriction)

Last Output : Number of active solenoid (this value can not be change, system will detect automatically the number of solenoid connected to the control card)

Time Off: laps of time between each pulsation (value 10 seconds)

Time ON:Valve pulsating time (250 msec value)

High Limit:Value to which cleaning will start (value between 2.5 and 3.5)

Low limit:Value to which cleaning will stop automatically (value between 2.5 and 3.5)

High Alarm:Value to be reached to activate Alarm (value High limit +2)

Low Alarm: Value having to be reached to activate Alarm (value =0)

Cycle Delay:This value is for manual mode (value= 0)

Down time cycles: ..This value is for manual mode (value= 0)

Auto Alarm reset: ..This value is for manual mode (value= 0)



PREVENTIVE MAINTENANCE

Always wear a properly fitted and maintained, CSA, OSHA or NIOSH approved respirator and eye protection when emptying the dust drawer. Failure to do so could result in respiratory disease or serious respiratory and eye irritation. Toxicity and health risk vary with type of media, and dust generated by blasting. Identify all material that is being removed by blasting, and obtain a Materials Safety Data Sheet for the blast media.

Weekly

With the exhauster turned off, check the in-line dust filter dust accumulation. Check the exhaust air during a pulse cycle. If dust is emitting from the exhauster, cartridges are leaking or damaged. Check immediately

With the exhauster turned off, empty the dust barrel. Heavily contaminated parts or friable media may require the drawer be emptied more often. Never allow the drawer to become more than a quarter full.

SERVICE MAINTENANCE

WARNING All maintenance must be done with the electrical power locked-out and tagged-out, and the compressed air supply line bled, locked-out and tagged-out. Failure to do so could result in death or serious injury from electrical shock, unintentional actuation of a component, or from the venting of trapped compressed air.

REPLACING FILTER CARTRIDGES



WARNING : Failure to wear properly fitted and maintained, CSA, OSHA or NIOSH approved respirator and eye protection when servicing dust laden areas of the dust collector could result in serious eye irritation and lung disease or death. Toxicity and health risk vary with type of media, and dust generated by blasting. Identify all material that is being removed by blasting, and obtain a Materials Safety Data Sheet for the blast media.

Empty the dust drum.

Open the front access door.

Remove the cartridges from the front access door . A small amount of force may be necessary to loosen the seal of the cartridge gasket.

When cartridges are removed, clean the inside of the collector to remove loose or hardened dust, particularly from the cartridge sealing surface, and the clean side (top side) of the cartridge sheet.

Install new cartridges; center each cartridge, install back the cartridge spacer and turn the locking to assure a proper seal.

Inspect the access door gasket, replace if worn or damaged. Close the access door and secure.



SEASONING CARTRIDGES

New cartridges must be seasoned. Cartridges are seasoned by letting a dust layer develop on the outside surface of the filter media. The dust layer protects the filter cartridge, and enhances the filtering efficiency.

AUTOMATIC CARTRIDGE CLEANING

Cleaning will be done automatically. When differential static pressure indicator (parameter section high alarm, page 11) indicates high-pressure alarm, the high alarm signal will blink. Cartridges need to be replaced at that time

TROUBLESHOOTING



WARNING : shut down the collector immediately if dust is emitting from the exhauster. Check that cartridges are correctly seated and not worn or damaged. Prolonged breathing of abrasive dust and blasting by-product dust could result in serious lung disease or death. Short term ingestion of toxic dust such as red lead, poses an immediate danger to health. Identify all materials that are to be removed by blasting, and obtain a Materials Safety Data Sheet for the blast media.

Collector Not Pulsing

- ☀ Check the manifold pressure gauge. If the reading is low, check the regulator adjustment, and compressed air supply, look for a closed supply valve.
- ☀ Check to make sure the sequence switch is energized.
- ☀ Check that the pulse system program as not been change.
- ☀ Check the fuse in the main electrical box. Replace as necessary.

One Cartridge Not Pulsing

- ☀ Solenoid is defective. Check continuity for electrical malfunction.
- ☀ Check the diaphragm valve. With the compressed air turned off, remove the cover screws, inspect the diaphragm and clean the bleed port.
- ☀ Check for blockage in the tubing to the diaphragm valves.

Pulse is a steady stream of air instead of a pulse.

- ☀ Check for a leak in the tubing between the diaphragm valves and solenoid.
- ☀ Solenoid is remaining in open position. Check continuity, clean, replace.

Exhauster Not Running

- ☀ Exhauster overload could be tripped. Reset and check for overload.
- ☀ Make sure that the main disconnect is «on».
- ☀ Motor is defective. Check continuity.



TROUBLESHOOTING (CONT'D)

Excessive Differential Pressure

- ☀ Valves may not be pulsing properly.
- ☀ The differential pressure gauge lines may be plugged with dust. Check and clean.
- ☀ Make sure the tubing has not been inserted so far into the tube connection that it blocks the tube ends. The in-line dust filter may be blocked. Clean or replace.
- ☀ Snubbed fittings blocked with dust. Clean or replace.

No Reading on Differential Pressure Gauge.

- ☀ Check to make sure the low and high pressure lines have not been reversed.
- ☀ Check that the exhauster is running.

Dust is Emitting from Exhauster.

- ☀ Check for loose or damaged filter cartridge.



FRONT VIEW



electrical
panel
see. fig. G

A

1

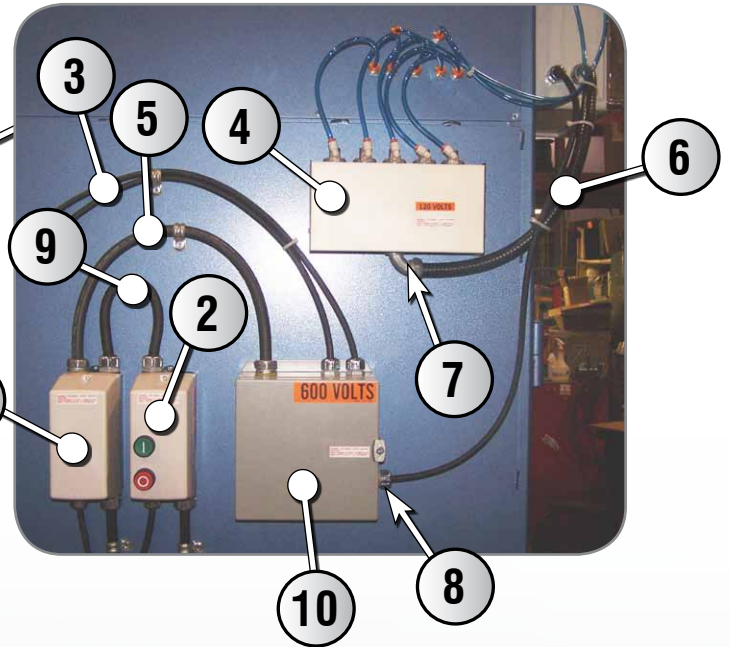
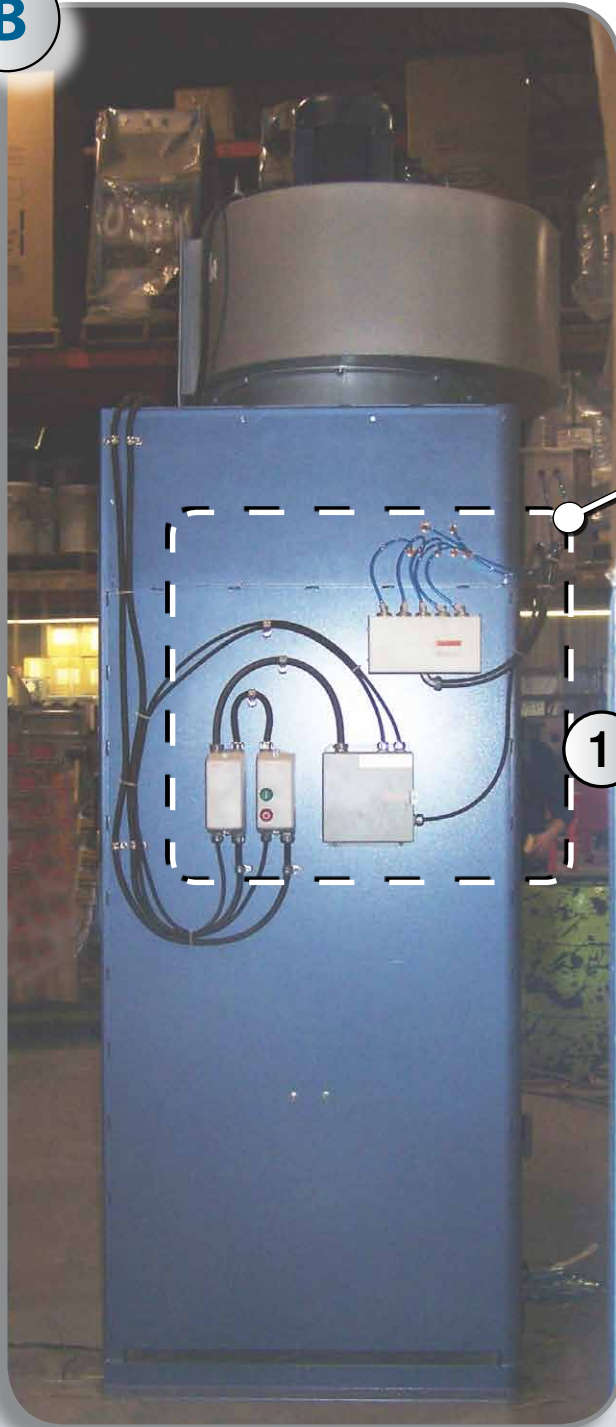
1

2



RIGHT SIDE VIEW

B





LEFT SIDE VIEW





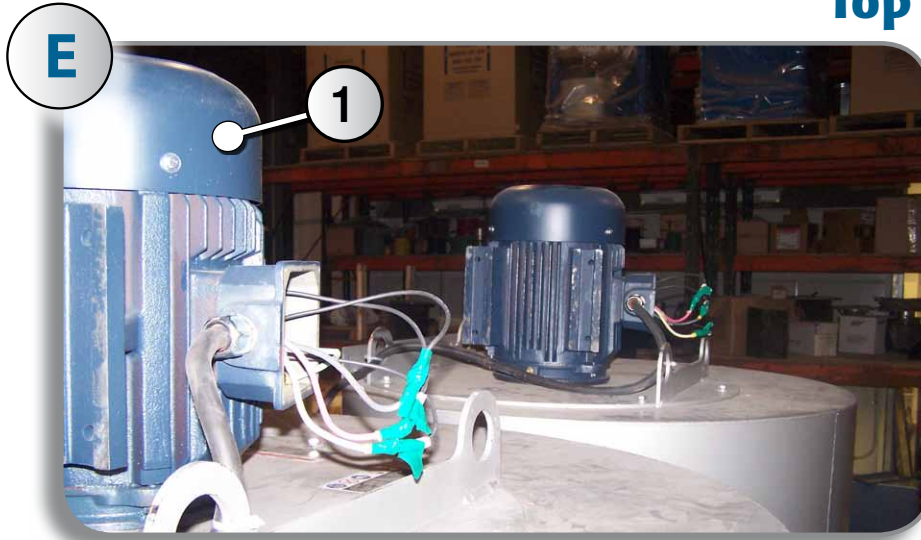
REAR VIEW



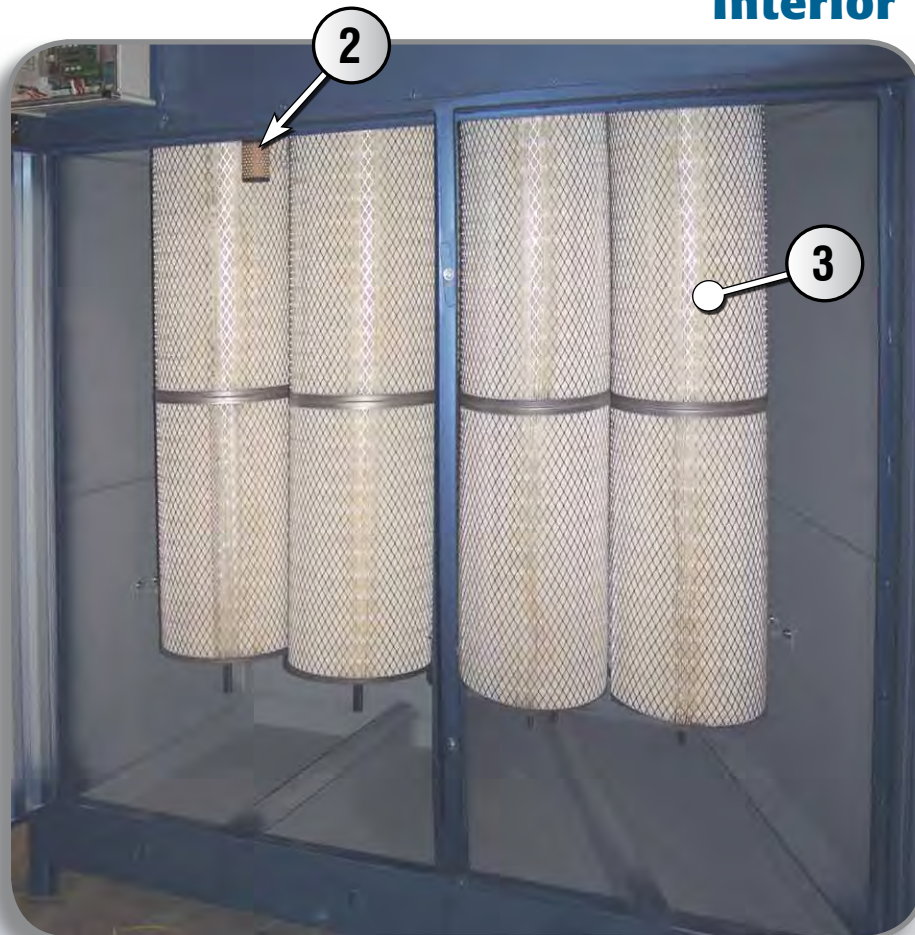


TOP & INTERIOR VIEW

Top



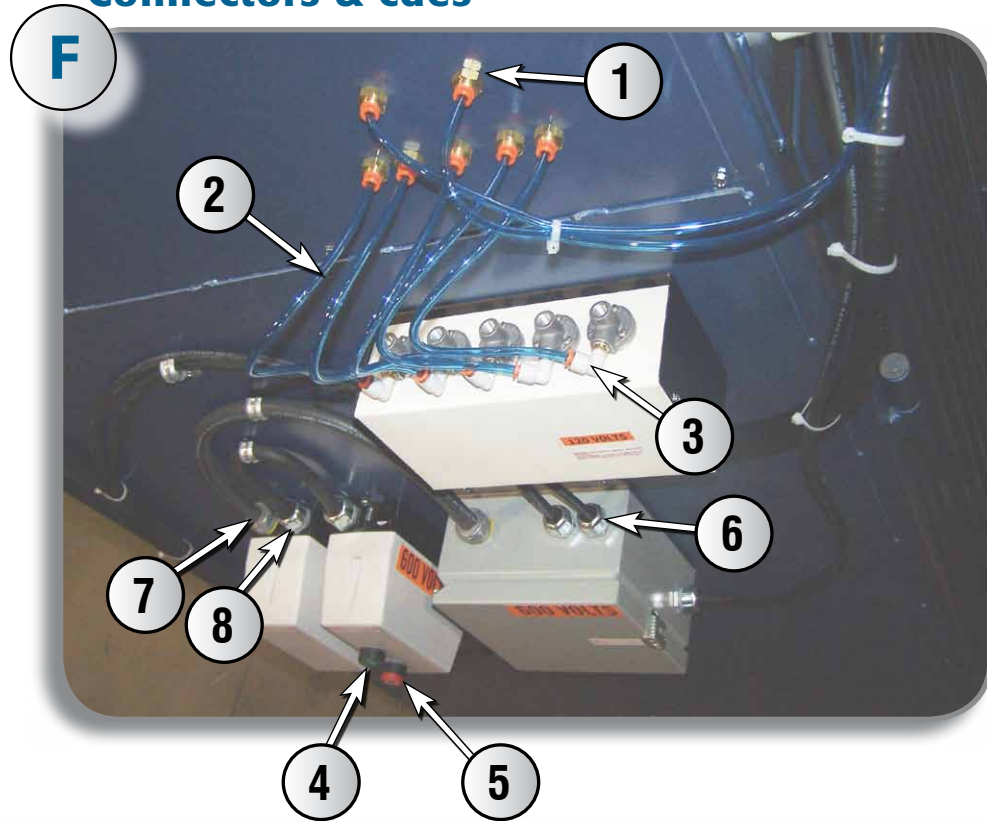
Interior



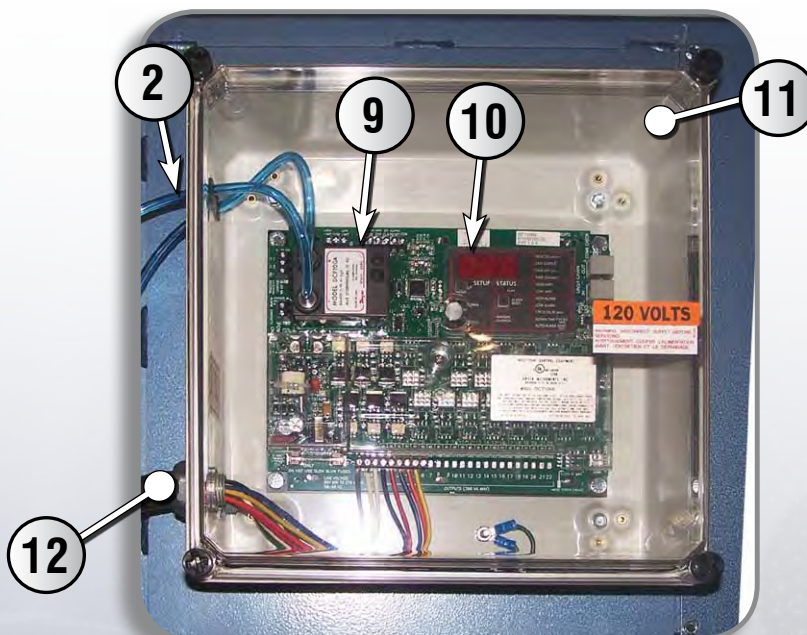


ELECTRICAL DETAILS

Connectors & cdes



Panel





ELECTRICAL DETAILS - PARTS LIST

Figure A

#	STOCK	DESCRIPTION
1	916163	BLOWER
2	NPN	DUST DRAWER
3	6165725	MOTOR

Figure B

#	STOCK	DESCRIPTION	#	STOCK	DESCRIPTION
1	618054	STARTER WITH BUTTON	6	616534	LIQUID TIGHT 1/2"
2	617053	STARTER	7	616767	CONNECTOR 1/2" 90°
3	616572	ELECTRIC CABLE 14-3	8	616741	STRAIN RELIEF 2522
4	608568	SOLENOID	9	616580	ELECTRIC CABLE 12-4
5	616535	LIQUID TIGHT CABLE 3/8	10	917799	OVERLOAD RELAY
				617289	TIMER 24V
				917497	TRANSFORMER 460/120-240 250VA

Figure C

#	STOCK	DESCRIPTION
1	NPN	AIR INLET

Figure D

#	STOCK	DESCRIPTION
1	NPN	FOAM GASKET



PARTS LIST (CONT'D)

Figure E

#	STOCK	DESCRIPTION	#	STOCK	DESCRIPTION
1	616572	MOTOR	3	901348	CARTRIDGE
2	611056	MOTOR FILTER			

Figure F

#	STOCK	DESCRIPTION	#	STOCK	DESCRIPTION
1	324502	BULK HEAD PUSH IN	7	616770	CONNECTOR 3/8"
2	324571	URETHANE HOSE 1/4"	8	616742	STRAIN RELIEF 2525
3	324561	PUSH IN 1/8" NPT X 1/4"	9	908704	PRESSURE MODULE DCP100
4	N PN	"ON" BUTTON	10	908702	TIMER CONTROLLER DCT1000
5	NPN	"OFF" BUTTON	11	917474	BOX WITH COVER
6	616741	STRAIN RELIEF 2522	12	616534	LIQUID TIGHT 1/2"

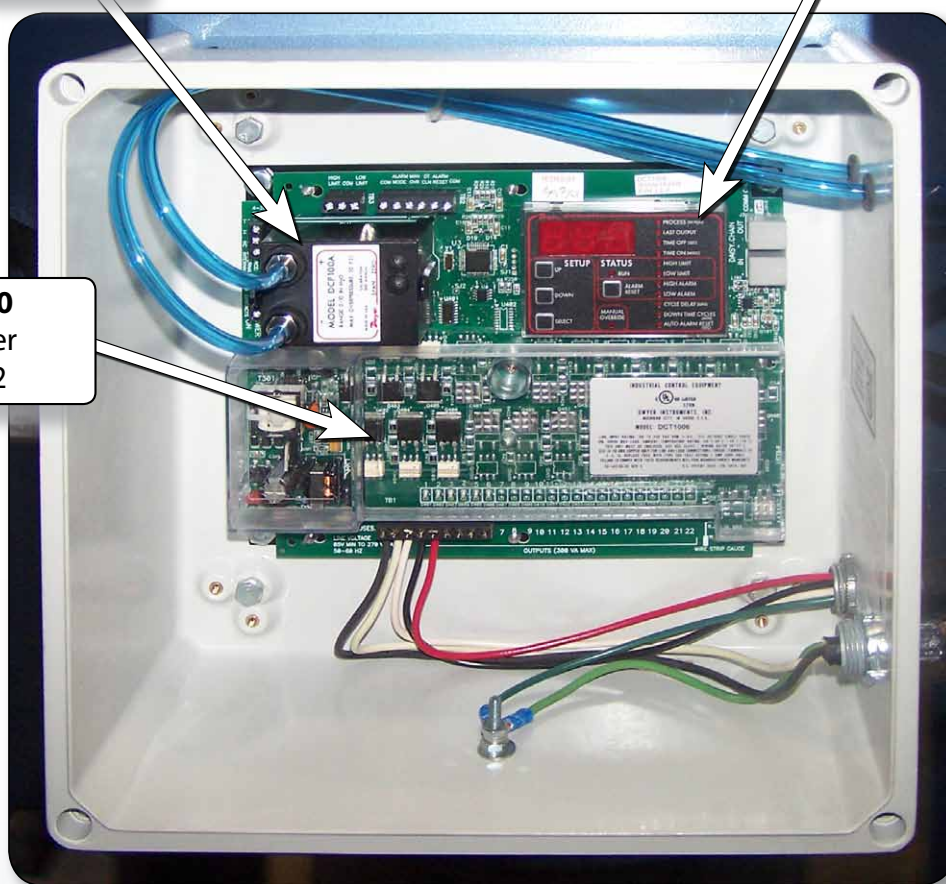


TIMER CONTROLLER SYSTEM

DCT 100
Pressure module
908704

DCT 100
Static pressure
indicator

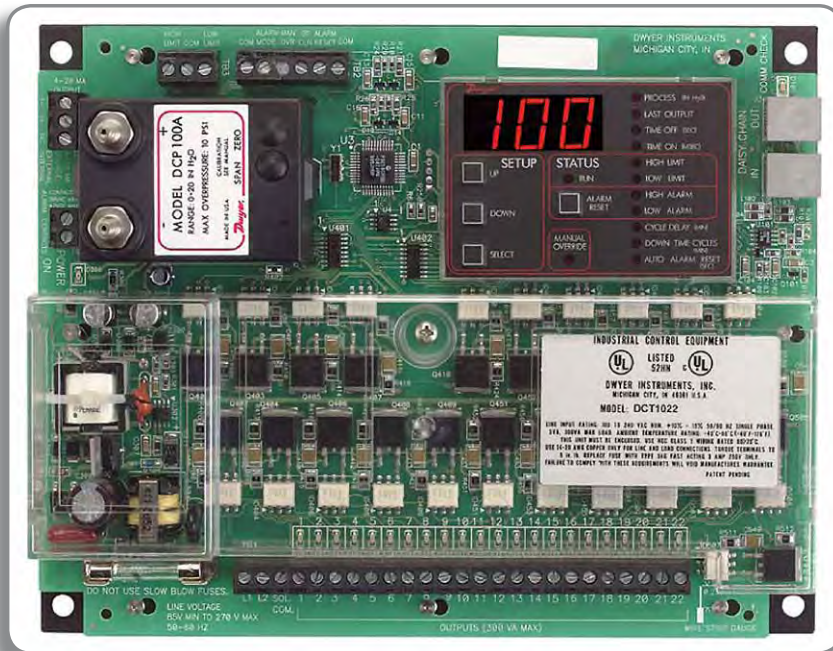
DCT 1000
Sequencer
908702





SERIES DCT1000 DUST COLLECTOR TIMER CONTROLLER

Specifications – Installation and Operating Instructions



Thank you for purchasing the DCT1000 Dust Collector Timer Controller. You have selected a state of the art dust collector timer control that will provide years of dependable operation and service.

The DCT1000 Dust Collector Timer Controller was designed to be used with pulse-jet type dust collectors for on-demand or continuous cleaning applications.

Continuous cleaning applications do not require external inputs and can be used for time based “on-demand” cleaning through use of the cycle delay feature.

For on-demand applications, the plug-in pressure modules (DCP100A/200A) can be used to take full advantage of all the features the DCT1000 offers, or an external

pressure switch (such as the Dwyer Photohelic®) can be used for High/Low limit control. As with traditional Dwyer products, the Dwyer DCT1000 was designed so that it is easy to use, thus allowing for a quick and easy start up for your dust control applications. The contents inside this installation and operating manual will guide you through the features of the DCT1000 and how they can be applied to get the most out of your dust control requirements.

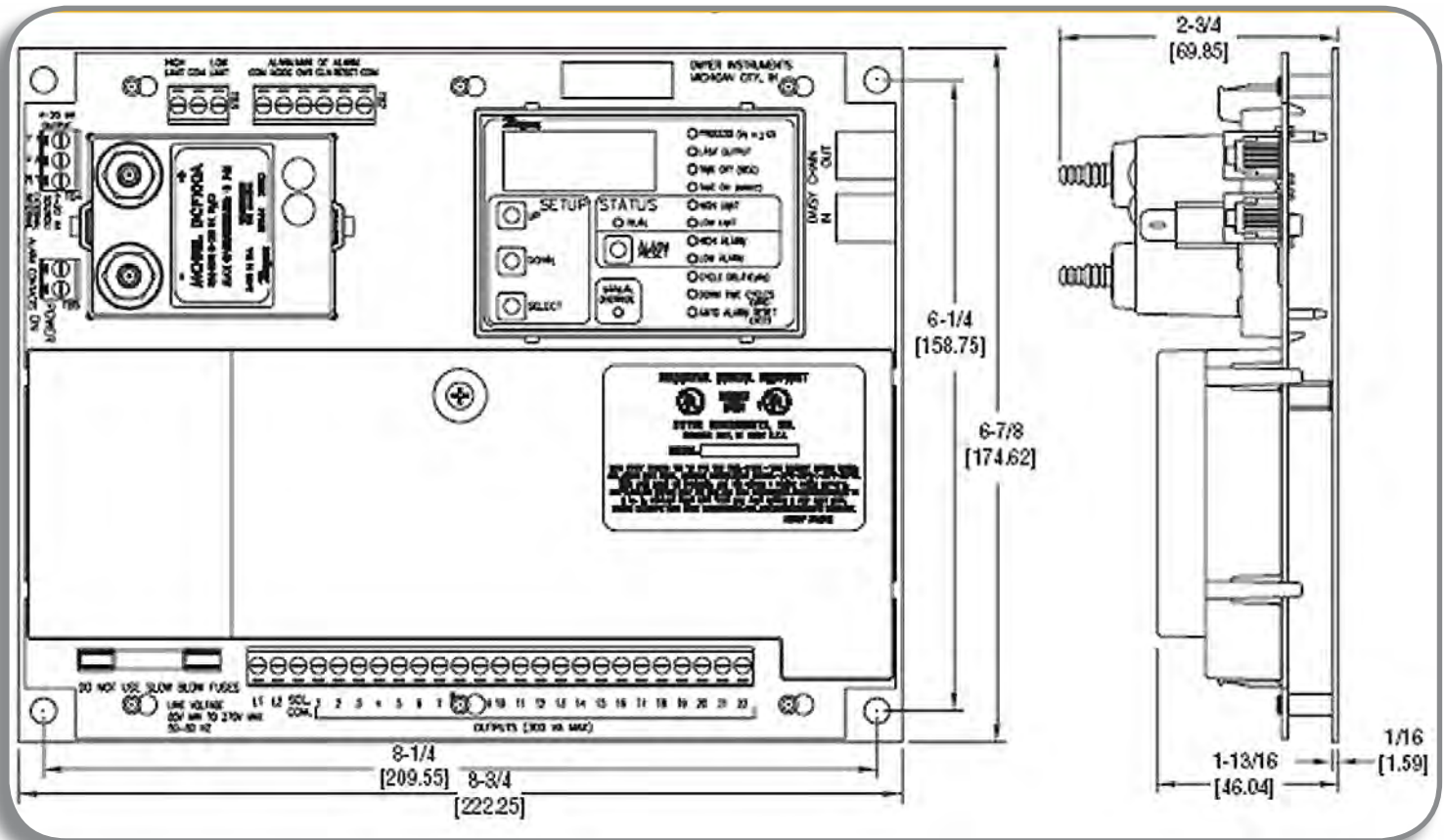
SPECIFICATIONS

- Output Channels: 6, 10, & 22 channels. Expandable to 255 channels using DCT1122 & DCT1110 channel expander boards.
- Power Requirements: 85 to 270 VAC, 50 or 60 Hz.
- Solenoid Supply: 3A maximum per channel.
- Fuse: 3A @ 250 VAC. Low voltage control circuitry is isolated from the line voltage for system safety.
- Temperature Limits: - 40 to 140°F (- 40 to 60°C).
- Storage Temperature Limits: -40 to 176°F (-40 to 80°C).
- On Time: 10 msec to 600 msec, 10 msec steps.
- On Time Accuracy: ±10 msec.
- Off Time: 1 second to 255 seconds, 1 second steps.
- Off Time Accuracy: ±1% of the value or ±50 msec, whichever is greater.
- Weight: 1 lb 3.0 oz (538.6 g).
- Agency Approvals: UL, cUL.



SERIES DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)

Dimensional Specifications



1.0 — INSTALLING THE DCT1000



Warning: Always install and service this device with the power off and a lockout installed if required. Line voltages will be exposed at the power/output connector and at the fuse. For this reason, we have installed a plastic guard to protect the user from accidentally contacting line voltages.

Please note that the power guard serves as a safety feature and should not be removed under any circumstances.

For ease of installation and maintenance, the connectors and fuse have been left unprotected. The open frame design of the DCT1000 will require an enclosure that meets appropriate safety and local code requirements. For optimal performance, the enclosure should also protect the controller from dirt, water and direct sunlight. There are no special orientation requirements, and the controller mounts easily using the mounting holes on the factory installed base plate.



Caution: Do not run control wires, communication cables, or other class 2 wiring in the same conduit as power leads. The system may malfunction if class 2 wiring is run together with power conductors.



1.0 — INSTALLING THE DCT1000 (CONT'D)

1.1 Power Requirements

The controller has a “universal” power supply that will allow operation on 120 VAC to 240 VAC power lines. The input voltage must be between 85 VAC and 270VAC either 50 or 60 Hz. No circuit changes are required when switching between these voltages. The solenoid loads, however, must be sized to accommodate the line voltage selected.

1.2 DCT1000 Terminal Connections

The line and solenoid connections are located at the lower edge of the board below the plastic guard. The terminal block is a “Euro” style connector system that clamps the wire within the connector body. The connector will accept wire sizes from 14 to 22 AWG.

The wire should be stripped to no more than 0.25 inches to avoid shorts or expose line voltages creating a potential safety hazard. To assist you in determining the proper wire gauge required, a strip gauge is provided at the lower right corner of the board.

The connector system used on the DCT1000 is specified for single connection but you can piggyback to a single lug provided that local codes allow for this and good workmanship practices are followed.

To power up the master controller and the channel expander, connect line power to L1 and L2 (see Dimensional Specifications, Figure 1). Connect the solenoids between the selected output and the solenoid common. Solenoid common and L2 are internally connected.

Switches connected to the control inputs at the top of the board must be isolated contacts connected only to the relevant terminal and to the common terminals. The following subparagraphs describe the external switch.

1.2.1 External Pressure Connection

The controller may be used with an external pressure limit switch or sensor to provide demand-cleaning operation. The high limit and low limit inputs may be used for this purpose.

A simple on-off system can be established with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch/gage such as the Dwyer Photohelic®.

In this on demand mode, time on, time off, and cycle delay may be programmed to define the cleaning cycle. A three pin terminal block (TB3) provides connection for external high and low limit switches (see Figure 2 on the next page). These switches must be isolated contacts. The common line must not be connected to equipment ground or protective ground, since these may introduce electrical noise and cause improper operation or possible damage to the control board. The operation of these inputs are summarized as follows (see next page):

Current operation	Low limit switch	High limit switch	Next operation
Hold	Open	Open	Hold
Hold or Run	X	Closed	Run
Hold	∅	Ouvert	Hold
Hold	Closed	∅	Run
Run	Closed	*	Run
Hold	Closed	∅	Run
Run	*	Open	Hold

Legend	
X	Either open or closed
∅	Transition from open to closed
*	Transition closed to open

Note: If a DCP100A or DCP200A pressure module is installed in the master controller, the switching functions are ignored.



1.0 — INSTALLING THE DCT1000 (CONT'D)

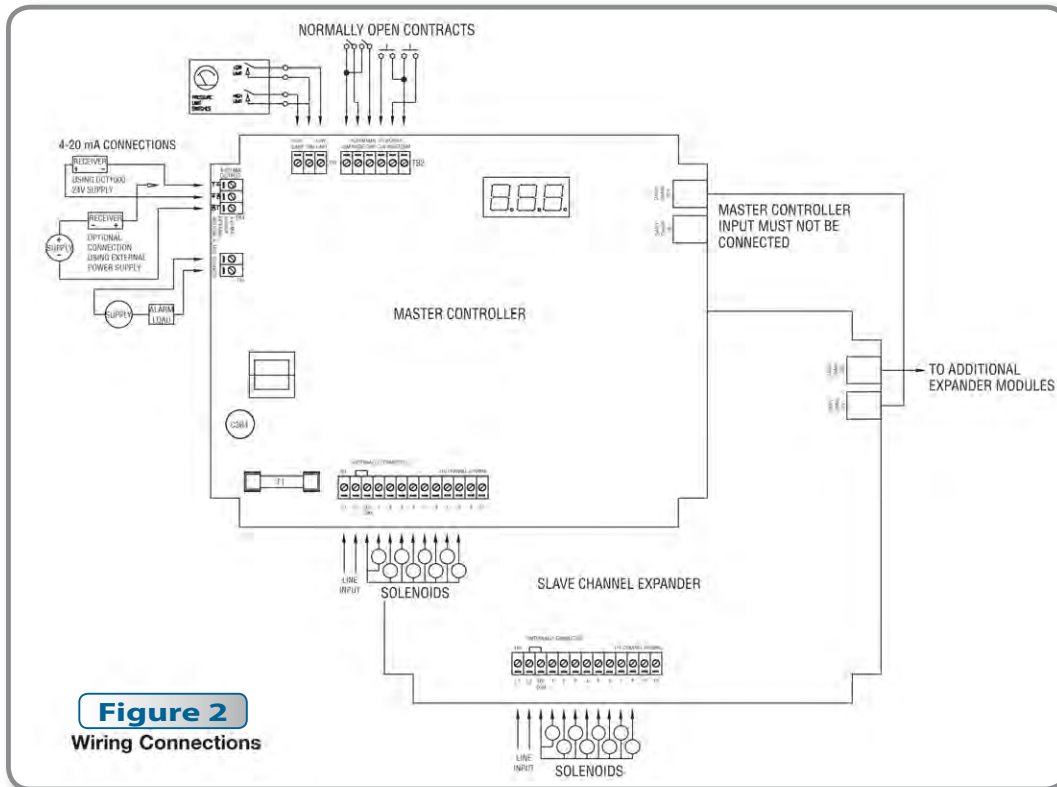


Figure 2
Wiring Connections

1.2.2 Manual Override Switch Connection

The manual override function allows the system to be set to the run mode regardless of other conditions. This mode is enabled when the manual override terminal and common are connected. It is disabled when they are disconnected. If the controller is to be run in continuous mode, a jumper wire may be wired across these terminals. When manual override is needed on a periodic basis, wire a SPST toggle switch between the manual override terminal and the common terminal.

1.2.3 Down Time Clean Connection

The down time clean operation forces the system into a run cycle for a programmed length of time between 0 – 255 minutes. The operation is initiated by connecting the down time clean terminal to a common terminal. This function is best accomplished through use of an external normally open switch.

1.2.4 Connecting Multiple Timer Boards

Both master controller boards and slave boards can have up to a maximum of 22 channels each. The system may be expanded up to 255 channels using master controller boards and slave boards. The DCT1000 will automatically detect the total number of channels involved and make their outputs available. You will note that both the master controllers and slave boards have a telephone style connector mounted on the upper right hand side of the board. These connectors are for use in systems requiring slave boards that must be daisy chained together to provide additional channel capability. For systems that require the slave boards, the master controller must not have any connection made to its daisy chain input unless it is designated as a slave control itself. (For larger systems requiring more than three slave boards, a master controller must be used as the fourth slave board to satisfy power requirements.) This sequence would repeat itself until the limit of 255 channels has been reached. The cables used are not ordinary telephone style cables.



1.0 — INSTALLING THE DCT1000 (CONT'D)



CAUTION : Do not use telephone jumper cables. These have a “twist” in the connection and may damage the controllers. Cables designed for use with the DCT1000 are available from Dwyer Instruments (Model DCAC02-2 ft., DCAC04-4 ft., etc.).

1.2.5 Continuous Cycle Mode

The master controller has several operating modes available for different applications. Starting with the most basic mode, it is capable of operating in a continuous cleaning cycle. This can be initiated by either placing a jumper between the high limit input and the common, or the manual override input to the common connection. Controlling this cycle are three setup parameters: time off, time on, and cycle delay. Time on and time off specifically deal with the solenoid on time and the time interval between the end of the on pulse and the start of the next. The cycle delay allows a delay of up to 255 minutes to be programmed between the end of one complete cleaning cycle and the beginning of the next. This allows additional options for defining a cleaning profile.

1.3 DCP Installation



CAUTION : Prior to installing the DCP100A/200A please review the operating specifications carefully. Some operating systems, especially in pneumatic conveying applications, may see static pressure or vacuum conditions that exceed the capability of the DCP100A/200A pressure module. For these conditions there are a number of alternate Dwyer pressure products that can be used to meet your application requirements, all of which can be terminated to the Dwyer DCT1000 Dust Collector Timer Controller. For more information on these and other Dwyer products, please call us at (219) 879-8000, or visit us on the web at www.dwyer-inst.com or www.dust-controls.com.

1.3.1 Location

The system should be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements as the pressure module is not orientation sensitive. Care should be observed when routing the air hoses to ensure that any potential condensation or moisture will not drain into the sensor. Where heavy condensation is present, a drip loop or an in-line filter should be installed to ensure long term operation.

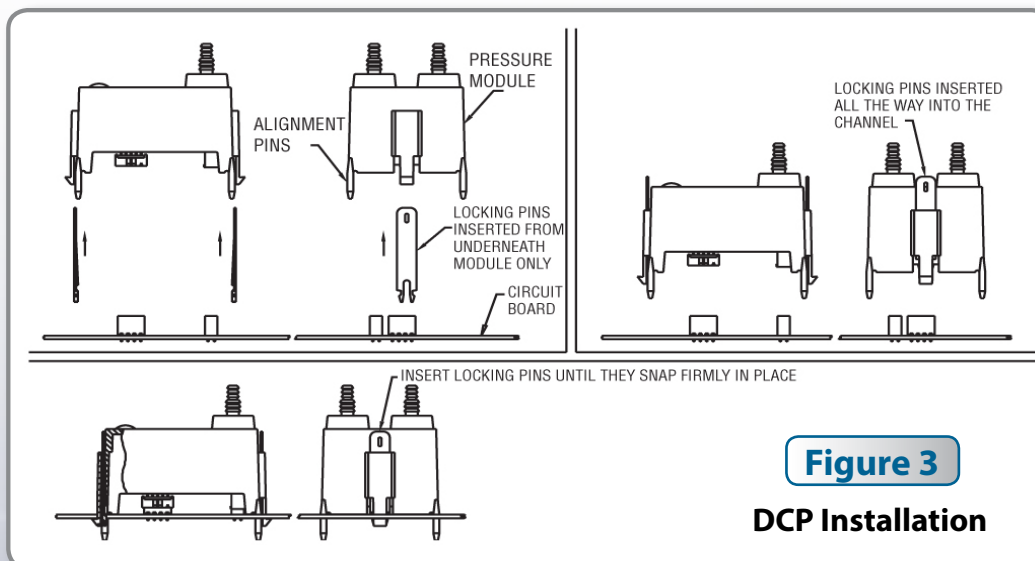


Figure 3

DCP Installation



1.0 — INSTALLING THE DCT1000 (CONT'D)

1.3.2 Connecting DCP to Master Controller

The pressure module is attached to the Master Controller using integral connectors on both units. The insertion ports for the pressure module are located in the upper left quadrant of the DCT1000 Master Controller. The pressure module can be removed by compressing the retaining clips on each end of the module, then gently pulling the module out of the master controller board. When inserting the module, the following procedure should be adhered to insure proper installation :

- Examine the bottom of the pressure module and note the orientation of the connectors.
- Align the module so that these connectors match the connector receptacles on the controller board
- Orient the module with the four alignment pins over their respective mounting holes.
- Gently press the module into the connectors and snap the retaining clips on either end of the module into their slots.
- Always install and service this device with the power off and a lockout installed if required. "Hot" plugging the pressure modul into an operating system may damage the system or cause the calibration parameters to be erased.

When installing or removing the module make sure to orient the module straight with board. Installing or removing the module at any angle may break the alignment pins.

1.3.3 — Pressure Model Locking Pins

The DCP100A and DCP200A are supplied with locking pins to secure the module. In normal operation these are not required since the latching tabs are sufficient to secure the module even in a high vibration environment. However if the unit is to be shipped or used where severe mechanical shock could be encountered the locking pins ensure the module will not snap out of the board.

To install the locking pins, from underneath the module insert one pin behind each of the two latching tabs. Press these all the way into the channel. The ends of the tabs will extend through the slots at the top of these channels. Next insert the module in the board as described above, making sure it is properly aligned and snaps firmly in place. Press the exposed locking tabs down until the tab is seated behind the latch in the board. To remove the module, slide the locking tabs up using a small screw driver then remove the module as described above. See Figure 3.

1.3.4 — Connections du DCP

When a pressure module is installed, the 4-20 mA process signal and the alarm relay contacts are available. The 4-20 mA circuit is isolated from ground and other signals. The alarm relay contacts are isolated, normally open contacts. Pressure connections may be made to the stepped hose barbs with either 1/8" or 3/16" I.D. tubing.



CAUTION : Do not force the module into the connectors. Forcing the insertion may damage the connectors. Properly aligned, the module should snap into place.

1.3.5 — DCP Maintenance

The pressure module should require very little maintenance under normal operational conditions. However, periodic calibration may be desirable to assure accuracy of the readings. The module may be removed and returned to the factory for calibration.



1.0 — INSTALLING THE DCT1000 (CONT'D)

1.4 — Connecting DCP to Master Controller

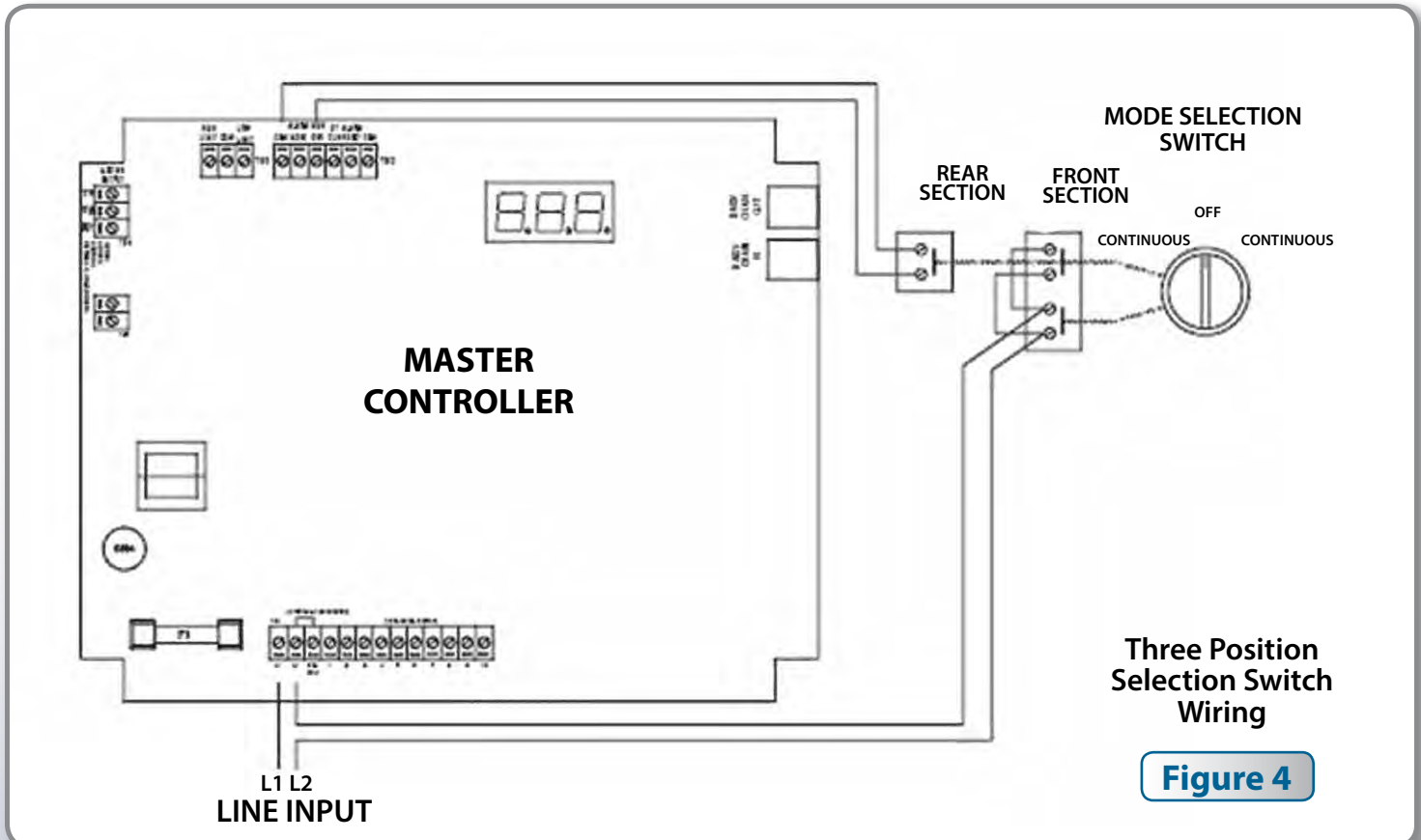
The auto alarm reset is controlled by the alarm mode switch connection. To enable the auto alarm reset the alarm mode input must be connected to a common connection. A jumper may be used when auto alarm reset is always active. A switch may be used if there are times that the auto alarm reset must be disabled. The switch must be an isolated contact and wired such that no connections are made between either of the wires and ground. See Figure 2 Wiring Connections.

1.4.1 — Alarm Reset Switch Connection

The alarm may be reset either by pressing the Alarm Reset button on the control panel or by an external switch connected between the alarm-reset terminal and one of the common terminals. The alarm reset will only operate if the pressure module is installed and the pressure has returned to a normal condition. See Figure 2 Wiring Connections.

1.4.2 — Connecting the 4-20 mA Loop

The pressure module provides an isolated 4-20 mA output, which may be used to remotely monitor the differential pressure across the dust bags or cartridges. The connection is made on the master control module at the terminal block designated for this signal. The connection is a 2-wire configuration with the option of using either an external 15 to 35 VDC power source or using the internal 24 VDC source. See Figure 2 Wiring Connections.





1.0 — INSTALLING THE DCT1000 (CONT'D)

1.5 – Three Position Selection Switch Wiring

An optional mode selection switch is available with the weatherproof enclosure. With this switch the user may select either continuous cleaning, on-demand cleaning, or off. This switch is supplied factory wired as shown in Figure 4. The switch has a front and rear section. The front section, consisting of two independent contacts, controls the power to the board. These contacts must be wired in parallel as shown in the diagram. The rear section controls the manual override, which when closed will force the system into a continuous mode. To be reconnected, follow the wiring diagram.



CAUTION : Do not interconnect the low voltage manual override leads with the power leads. This will destroy the control board as well as pose a serious shock hazard.

2.0 — PROGRAMMING THE DCT1000 MASTER CONTROLLER

We've made it easy to navigate the DCT1000. Menu items can be accessed simply by pressing the "SELECT" button. The menu item that you are currently accessing is indicated by the illumination of an LED. To change menu items, all you have to do is push "UP" to increase a value or push "DOWN" to decrease a value. There are no keystrokes that you need to memorize, special combinations, or passwords that are required. The master controller is equipped with an on board display and programming information center. The controller will power-up with the process indicator illuminated. If a pressure module is installed, the display will indicate the measured pressure in inches of water (w.c.); otherwise it will normally be blank

2.1 – Last Output

The Last Output setup selects the last channel to be activated. When first selected, the display will flash the last output available in the system. With single board installations, this will be the number of channels installed, typically 6, 10 or 22. This value becomes more important when multiple modules are installed. The last output value flashed will be the sum of all channels available in the system.

After the last available channel indication has completed, the currently programmed last channel value is displayed. This value may be changed using the "UP" and "DOWN" buttons. The minimum value is one while the maximum value is the maximum number of installed channels, including all expansion modules. The default value is the maximum number of channels. Pressing "SELECT" will change the setup mode to Time Off Setup.

2.2 – Time Off (Sec.)

Time off defines the period of time between solenoid activations when no channels are enabled. This may be set between one second and 255 seconds. The factory default is 10 seconds. The display will show the current time off setting when the time off setup mode is entered. The value may be changed using the Up and Down buttons. Pressing both "UP" and "DOWN" simultaneously and holding for approximately four seconds will restore the default value of 10.

2.3 • Time On (msec)

Time On Setup sets the solenoid on time. The display will indicate the currently programmed time on setting. This is measured in milliseconds. Using the "UP" and "DOWN" buttons, the value may be changed. The value may be set between 10 msec and 600 msec in 10 msec increments. Pressing the "UP" and "DOWN" buttons simultaneously for approximately four seconds will restore the factory default value of 100 msec. Pressing the "SELECT" button will advance the setup mode to the High Limit setup if the pressure module is installed. With no pressure module, it will step to Cycle Delay Setup.



2.0 — PROGRAMMING THE DCT1000 MASTER CONTROLLER

2.4 • High Limit [Only available when DCP connected]

The High Limit Setup, available only with a pressure module installed, sets the pressure at which the cleaning cycle will begin. This value may be between zero and the pressure module full scale pressure. Normally, the High Limit should be above the Low Limit. If, however, the High Limit pressure is set below the Low Limit, the cleaning cycle will begin when the High Limit is exceeded and stop when the pressure falls below the High Limit. The Low Limit in this case will have no effect. Pressing "SELECT" will change the system to the Low Limit Setup mode.

2.5 • Low Limit [Only available when DCP installed]

The operation of the Low Limit, available only with a pressure module installed, is identical to the High Limit except this value sets the pressure where the cleaning cycle will end. The upper settable value is the calibration pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the High Alarm Setup mode.

2.6 • High Alarm [Only available when DCP installed]

The operation of the High Alarm Setup is identical to the High and Low Limit Setup and is only available when a pressure module is installed. The High Alarm default is 0. The upper settable value is the full scale pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the Low Alarm Setup mode.

2.7 • Low Alarm [Only available when DCP installed]

The operation of the Low Alarm Setup is identical to the High and Low Limit Setup. The Low Alarm default is 0. The upper settable value is the full scale pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the Cycle Delay Setup mode.

2.8 • Cycle Delay (min)

The cycle delay inserts a delay time between the end of the last channel and the beginning of the first channel. This may be set to between zero and 255 minutes. The factory default is zero. Setting the value to zero will disable the delay. Pressing "SELECT" will change the system to the Down Time Cycles Setup mode.

2.9 • Down Time Cycles (min)

The Down Time Cycles setup will select a value between zero and 255 minutes. The factory default is one minute. Selecting zero will disable the operation. When the down time cycles is activated by shorting the down time cycles input to the common terminal, (see figure 2) the system will enter a forced cleaning mode for the programmed duration. NOTE: The cycle delay, if one is programmed, will not be inserted in the timing cycle. Pressing "SELECT" will change the system to the Auto Alarm Reset Setup mode, if a pressure module is installed, or to Process when no pressure module is available.

2.10 • Auto Alarm Reset (sec) [Only available when DCP installed]

The Auto Alarm Reset Setup, available only when a pressure module is installed, allows the auto alarm reset time to be selected. This value may be set between zero and 255 seconds. The factory default value is five seconds. When the auto alarm reset is enabled by shorting the auto alarm reset terminal to a common terminal, (See Figure 1) the alarm will be reset after the pressure returns to the normal range and the timeout has expired. Pressing "SELECT" will change the system to Process mode.



3.0 - MAINTENANCE SUPPORT AND DIAGNOSTICS

We have also included a number of features that will aid maintenance personnel in diagnosing problems or verifying that the system is operating.

3.1 Restoring Factory Defaults

The DCT1000 has been programmed with factory default values that meet most industry operating conditions. In the event that you want to restore all of the parameters to the original factory default values:

- (1) Return the master controller to the process mode.
- (2) Press and hold both "UP" and "DOWN" buttons.

The display will indicate a 10-second countdown, at the end of which all parameters will be restored to factory defaults. Releasing the switches prior to the end of the count will stop the process and no modification will be made. Likewise, in each of the parameter setup modes, pressing and holding the "UP" and "DOWN" buttons simultaneously will reset the individual default value, leaving other settings unchanged.

3.2 Power Indicator

A power on LED indicator is provided at the center left edge of the board. This will be illuminated when the power supply is operating properly. If the power LED is not illuminated, the primary power may be off or there is a fault in the power circuit.

3.3 Active Channel Indicator

Located just above the solenoid terminations, you will find that each channel is provided with an LED that is illuminated when the triac switch is on. This allows a visual correlation between the channel being pulsed and the operation of the solenoid.

3.4 Comm Check Indicator

The comm check indicator can be found in the upper right hand corner of the slave and master controller board (just above the "out" terminal, a telephone style connector). This indicator is used for two purposes. First, on a master controller a brief flash once per second is produced to indicate that the system is operating. Second, this indicator is used to show when the communication check operation is performed on slave boards. The master controller will check each of the slave boards at a rate of about one inquiry per second, starting with the slave board connected directly to the master controller and ending with the last slave board in the chain. The master controller will flash its Comm Check LED for about 250 msec each time it makes a communication check. The external module selected for test will also flash its Comm Check LED for about the same time each time it is interrogated. Observing this test sequence will indicate that the communication between boards is operational. When a slave board powers up, the Comm Check LED will be illuminated continuously. It will be extinguished when the master controller has initialized its communication channel. This indicator then shows that a master controller is operating and that each slave board is responding properly on the daisy chain.



3.0 - MAINTENANCE SUPPORT AND DIAGNOSTICS

3.5 Error Codes

Error codes will be displayed on the three-digit display when certain faults occur. Most of these indicators are associated with the daisy chain communication, but certain error codes pertain to single board operation also. These codes are :

Display	Meaning	Action required
Err 1	This is a “watchdog” reset that is enabled when the master controller isn’t able to cycle through its operation.	Make sure all electrical connections are appropriately shielded so the master controller is not disrupted by noise.
Err 2	The pressure module has failed to respond to the request of the master controller.	The master controller will try to recover from the fault. If unsuccessful, replace the pressure module.
Err 3	Communication error in the daisy chain interface. This will only appear when the master controller is used in conjunction with a slave board.	Make sure the control cable used in the daisy chain interface is properly shielded from noise.
Err 4	The master controller has detected a change in module configuration or a fault in one of the modules.	Reinstall all modules in accordance with the instructions in the factory IOM.
Err 5	If the fault described in “Err 4” is not corrected, the master controller will reconfigure the modules that are responding properly and operate at a degraded condition.	Reinstall all modules. Contact factory if the problem persists.
Err 6	A message error affecting the software of the master controller or one of its modules.	Check the integrity of all connecting cables used to drive slave boards for additional solenoids. Also check the electrical grounding of the system installation.
Err 7	Indicates that one of the triac drivers are not functioning..	Return to factory for evaluation and repair.
Err 8	Internal Error.	Contact the factory.
Err 9	Unassigned message code.	Contact the factory.



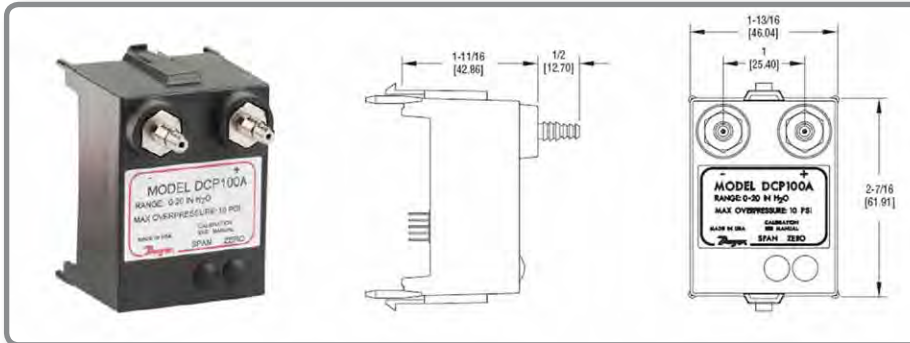
4.0 — GLOSSARY OF TERMS

- **Run Mode:** The term used when the timer board is firing the solenoids.
- **Pressure Module:** The pressure measurement subsystem that includes the software and hardware for on-demand cleaning, alarms and signal retransmission of the process variable (i.e., the differential pressure across the dust bags).
- **Master Controller:** The primary timer board that contains all of the major features, connections for external inputs and power to drive the DCT1000 Dust Collector Timer Controller system.
- **Power Guard:** A plastic shield that covers the output triacs and other line voltage circuitry.
- **Demand Cycle Mode:** A process in which the run mode is enabled through the on-board pressure module or an external switch such as the Dwyer Photohelic®.
- **Euro Connector:** A “caged” connection used to terminate solenoids, incoming power, or external switches on the DCT1000.
- **Continuous Cycle Mode:** A time based cycling mode dependent on solenoid time on/off settings and time set between complete cycles.
- **Manual Override:** Allows the user to override the DCT1000 remotely or from the master controller panel through use of a switch or a wire jumper.
- **Slave Board:** A channel expander that is used in conjunction with the master controller to accommodate additional solenoids on larger dust collection systems. It can be recognized easily as it does not have the on-board display panel or the power supply present. A master controller may also be used as a slave board.



SERIES DCP100A/200A PRESSURE MODULES

Specifications – Installation & Operating Instructions



The DCP100A or DCP200A pressure modules are designed exclusively for use with the Dwyer DCT1000 Dust Collector Timer/Controller boards for on-demand cleaning requirements. These series of modules are available in 10" w.c. [2.49 kPa] or 20" w.c. [4.98 kPa] ranges, which allow for differential process pressure measurement as indicated on the display of the master controller. An isolated 4-20 mA readout

channel is provided for remote pressure display. The 4-20 mA output may be wired either for use with an external power supply and indicator or using the isolated on-board 24 volt power supply to power the loop.

SPECIFICATIONS

- Pressure Ranges: 10" w.c. or 20" w.c.
- Temperature Limits: -40 to 140°F (-40 to 60°C).
- Pressure Limit: 10 psi (68.95 kPa).
- Pressure Limit (differential): 10 psi (68.95 kPa).
- Accuracy: ±1.5% F.S. @ 73°F (22.8°C).
- Output Signal: 4-20 mA.
- Alarm Contacts: 1.5A inductive load, 3A resistive load @ 30 VAC or 40 VDC.
- Process Connections: Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.
- Weight: 5.5 oz (155.9 g).

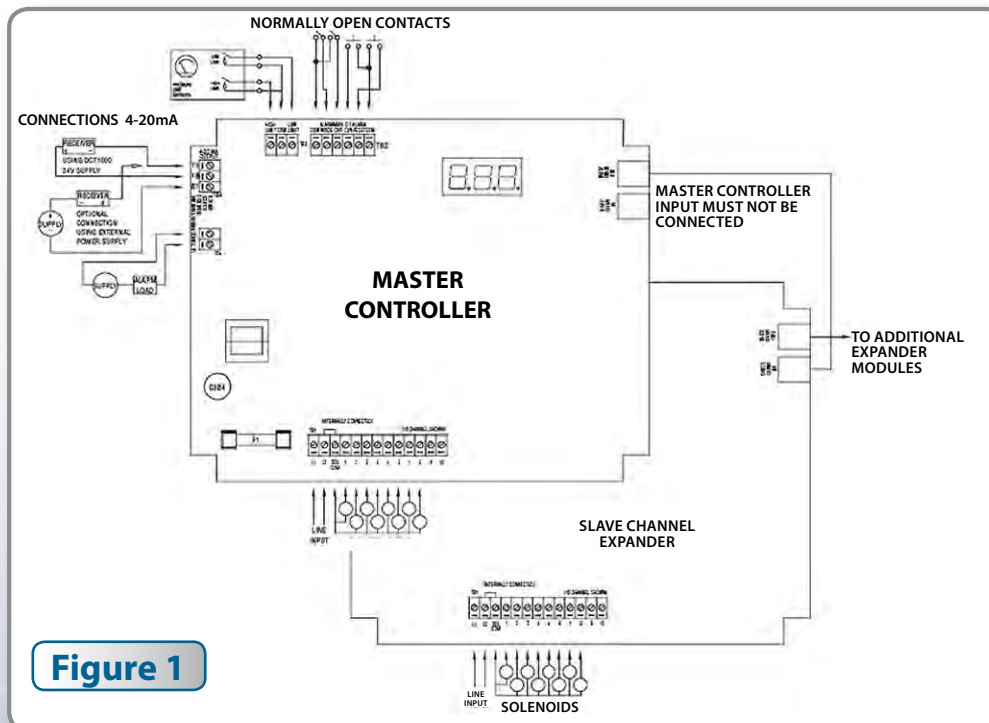



Figure 1



SERIES DCP100A/200A PRESSURE MODULES(CONT'D)

Specifications – Installation & Operating Instructions

1.0 — Installation

 **CAUTION :** Prior to installing the DCP100A/200A please review the operating specifications carefully. Some operating systems, especially in pneumatic conveying applications, may see static pressure or vacuum conditions that exceed the capability of the DCP100A/200A pressure module. For these conditions there are a number of alternate Dwyer pressure products that can be used to meet your application requirements, all of which can be terminated to the Dwyer DCT1000 Dust Collector Timer Controller. For more information on these and other Dwyer products, please call us at (219) 879-8000, or visit us on the web at www.dwyer-inst.com or www.dust-controls.com

1.1 — Location

The system should be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements as the pressure module is not orientation sensitive. Care should be observed when routing their hoses to ensure that any potential condensation or moisture will not drain into the sensor. Where heavy condensation is present, a drip loop or an in-line filter should be installed to ensure long term operation.

1.2 — Connections

When a pressure module is installed, the 4- 20 mA process signal and the alarm relay contacts are available. The circuit may be used with the internal 24-volt power source or with an external source. In either case, the 4-20 mA circuit is isolated from ground and other signals.

The alarm relay contacts are isolated, normally open contacts. Pressure connections may be made to the stepped hose barbs with either 1/8" or 3/16" I.D. tubing. The following subparagraphs describe the external switch connections. Refer to Figure 1 (above) for switch connection illustration.

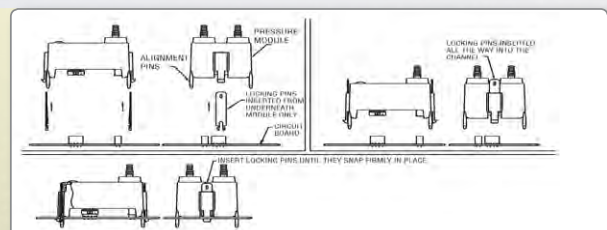
1.3 — Pressure Module Installation

The pressure module is attached to the Master Controller using integral connectors on both units. The insertion ports for the pressure module are located in the upper left quadrant of the DCT1000 Master Controller. The pressure module can be removed by compressing the retaining clip on each end of the module, then gently pulling the module out of the master controller board. When inserting the module, the following procedure should be adhered to insure proper installation:

- Examine the bottom of the pressure module and note the orientation of the connectors.
- Align the module so that these connectors match the connector receptacles on the controller board.
- Orient the module with the four alignment pins over their respective mounting holes.
- Gently press the module into the connectors and snap the retaining clips on either end of the module into their slots.
- Always install and service this device with the power off and a lockout installed if required. "Hot" plugging the pressure module into an operating system may damage the system or cause the calibration parameters to be erased.



CAUTION : Do not force the module into the connectors. Forcing the insertion may damage the connectors. Properly aligned, the module should snap into place.





SERIES DCP100A/200A PRESSURE MODULES

Specifications – Installation & Operating Instructions

2.0 Demand Mode using a DCP100A/200A Pressure

The DCT1000 system may be configured to be a self-contained on-demand control system with the installation of the DCP100A /200A pressure module. When this module is installed, the master controller detects it and automatically sets the system to an ondemand mode, enabling features associated with the pressure sensor. The following subparagraphs describe the setup and operation of these pressure related features.

2-1 — High Limit Setup

The High Limit Setup sets the pressure at which the cleaning cycle will begin. This value may be between zero and the pressure module calibration pressure. Normally, the High Limit should be above the Low Limit. If, however, the High Limit pressure is set below the Low Limit, the cleaning cycle will begin when the High Limit is exceeded and stop when the pressure falls below the High Limit. The Low Limit in this case will have no effect. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory setting for High Limit to 5.0" w.c. [1.24 kPa].

2.2 — Low Limit Setup

The operation of the Low Limit mode is identical to the High Limit mode except that the default Low Limit pressure is 3.0" w.c. [0.75 kPa]. The upper settable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the Low Limit indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

2.3 — High Alarm Setup

The operation of the High Alarm Setup is identical to the High and Low Limit Setup. The High Alarm default is 0.0" w.c. The upper settable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the High Alarm indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

2.4 — Low Alarm Setup

The operation of the Low Alarm Setup is identical to the High and Low Limit Setup. The Low Alarm default is 0.0" w.c. The upper settable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the Low Alarm indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

2.5 — Auto Alarm Reset Setup

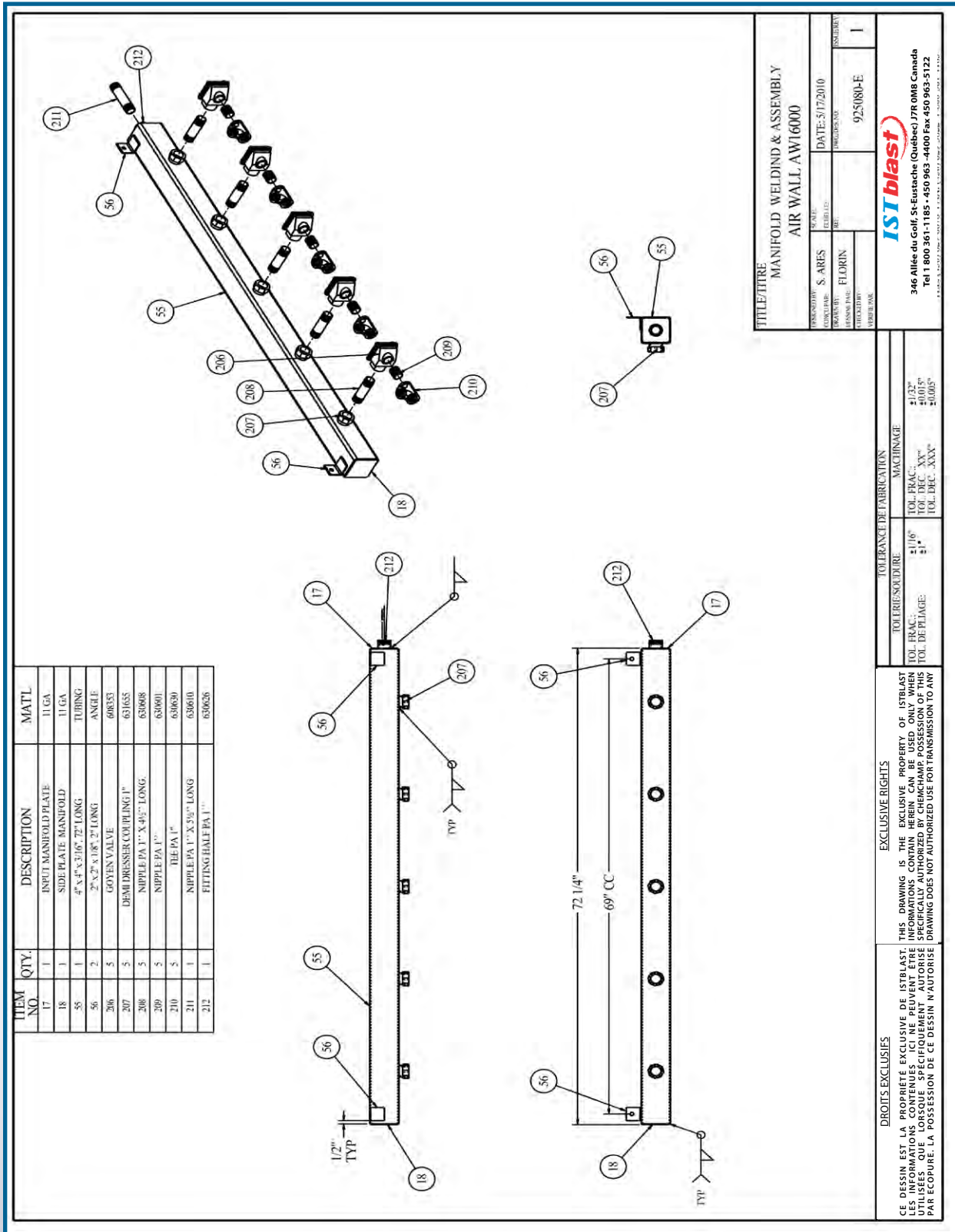
The Auto Alarm Reset Setup mode allows the auto alarm reset time to be selected. This value may be set between zero and 255 seconds. The factory default value is five seconds. When the auto alarm reset is enabled by shorting the auto alarm reset terminal to a common terminal, the alarm will be reset after the pressure returns to the normal range and the selected timeout period has expired.

3.0 Pressure Module Maintenance

The pressure module should require very little maintenance under normal operational conditions. However, periodic calibration may be desirable to assure accuracy of the readings. The module may be removed and returned to the factory for calibration.



MANIFOLD - WELDING & ASS'Y SCHEMATIC



TITLE/TITRE MANIFOLD WELDING & ASSEMBLY AIR WALL AW16000			
DESIGNED BY S. ARS	DATE 5/17/2010	ISSUED BY I	ISSUE NO 1
DRAWN BY FLORIN	DATE 5/17/2010	ISSUED BY	ISSUE NO
ISSUED BY	DATE	ISSUED BY	ISSUE NO



346 Allée du Golf, St-Eustache (Québec) J7R 0M8 Canada
Tel 1 800 361-1185 - 450 963 - 4400 Fax 450 963-5122

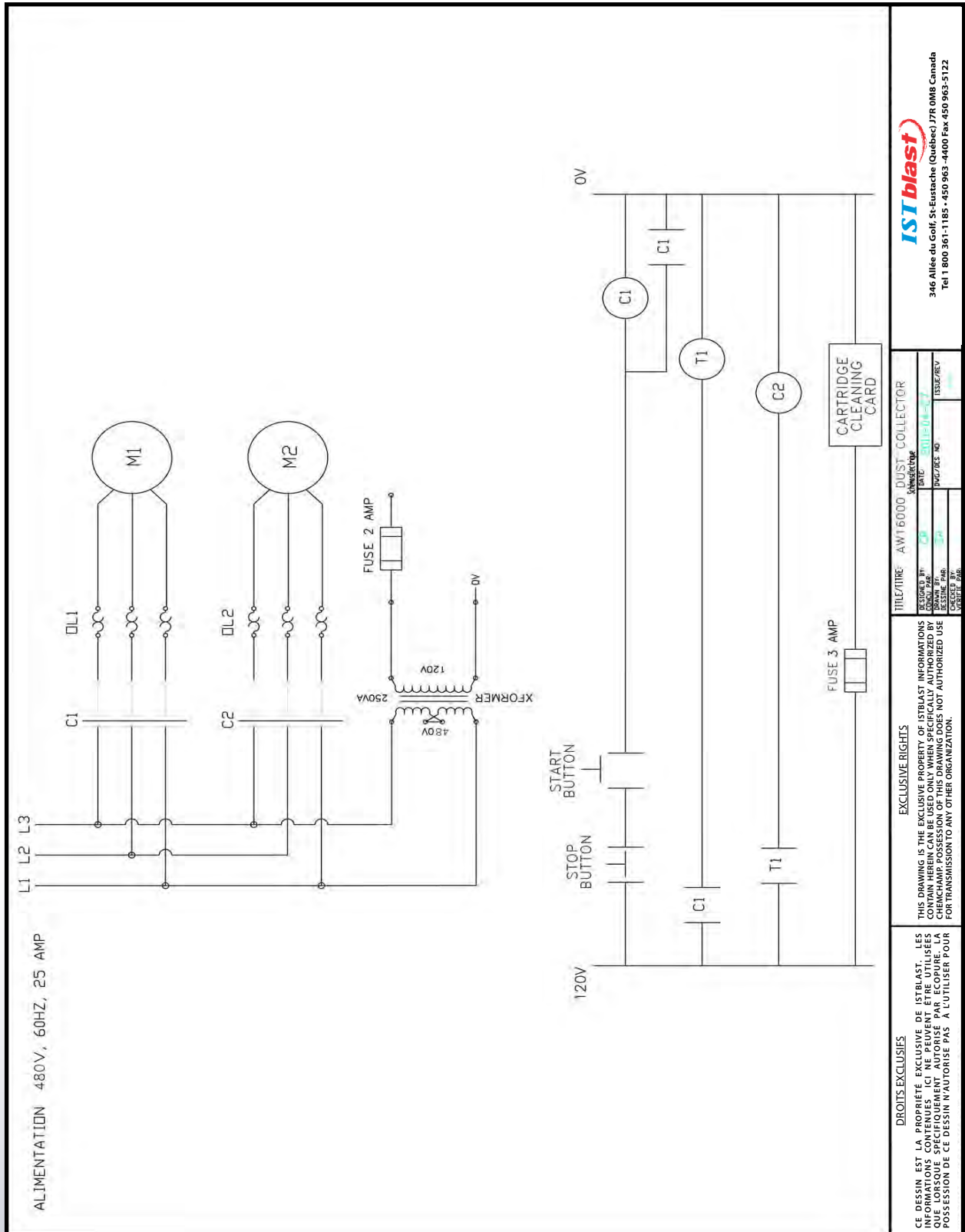
TOLERANCE DE FABRICATION	
TOL. RESSORTURE	MACHINAGE
TOL. FRAC.: ±1/16"	TOL. FRAC.: ±1/32"
TOL. DE PLIAGE: ±1"	TOL. DEC. XX": ±0.015"
	TOL. DEC. .XXX": ±0.005"

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ELECTRICAL SCHEMATIC





ISTBLAST LIMITED WARRANTY

ISTblast warrants all equipment led in this manual which is manufactured by ISTblast and bearing its name, to be free from defects in material and workmanship on the date of sale by an authorized ISTblast distributor to the original purchaser for use. Notwithstanding any special, extended or limited warranty published by ISTblast will, for a period of TWELVE (12) months from the date of sale, repair or replace any part of the equipment determined by ISTblast to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with ISTblast's written recommendations.

This warranty does not cover, and ISTblast shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non- ISTblast component parts. Nor shall ISTblast be liable for malfunction, damage or wear caused by the incompatibility with ISTblast equipment with structures, accessories, equipment or materials not supplied by ISTblast, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by ISTblast.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized ISTblast distributor for verification of the claimed defect. If the claimed defect is verified, ISTblast will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser, transportation prepaid. If the inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

ISTblast's sole obligation and the buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought forward within one (1) year of the date of sale.

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LIMITATION OF LIABILITY

In no event will ISTblast be liable for indirect, incidental, special or consequential damages resulting from ISTblast supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of ISTblast, or otherwise.

Report all accidents or "near misses" which involve ISTblast products to:
- **Technical Assistance**

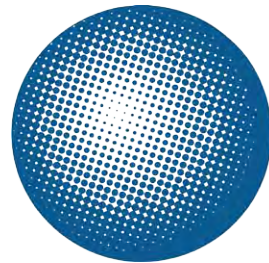
The following items are not covered under the ISTblast warranty policy:
- **Parts or chassis replacement due to normal wears.**

Defective material or workmanship is not considered normal wear



WARRANTY INFORMATION / TECHNICAL ASSISTANCE

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